

***What Is Claimed Is:***

5        1. An immunologic molecule wherein said immunologic molecule is capable of binding to both (1) human and nonhuman circulating  $\alpha$ 2-antiplasmins and (2) human and nonhuman fibrin crosslinked  $\alpha$ 2-antiplasmins.

10        2. The immunologic molecule of claim 1, wherein said immunologic molecule is a chimeric antibody.

15        3. The immunologic molecule of claim 1, wherein said immunologic molecule is a humanized antibody.

20        4. The immunologic molecule of claim 1, wherein said immunologic molecule is an antibody fragment.

25        5. The immunologic molecule of claim 1, wherein said immunologic molecule is a monoclonal antibody.

30        6. The immunologic molecule of claim 1, wherein said immunologic molecule comprises amino acids 1 to 107 of SEQ ID NO:9 and amino acids 1 to 119 of SEQ ID NO:15.

7. The immunologic molecule of claim 1, wherein said immunologic molecule comprises amino acids 1 to 107 of SEQ ID NO:5 and amino acids 1 to 119 of SEQ ID NO:11.

8. The immunologic molecule of claim 1, wherein said immunologic molecule comprises amino acids 1 to 107 of SEQ ID NO:7 and amino acids 1 to 119 of SEQ ID NO:13.

9. The immunologic molecule of claim 1, selected from the group consisting of:

- (a) an immunologic molecule, wherein the CDR1 region of the light chain of said immunologic molecule comprises amino acids 26 to 32 of SEQ ID NO:75;
- (b) an immunologic molecule, wherein the CDR2 region of the light chain of said immunologic molecule comprises amino acids 50 to 52 of SEQ ID NO:75;
- (c) an immunologic molecule, wherein the CDR3 region of the light chain of said immunologic molecule comprises amino acids 91 to 96 of SEQ ID NO:75;
- (d) an immunologic molecule, wherein the CDR1 region of the heavy chain of said immunologic molecule comprises amino acids 26 to 32 of SEQ ID NO:79;
- (e) an immunologic molecule, wherein the CDR2 region of the heavy chain of said immunologic molecule comprises amino acids 53 to 56 of SEQ ID NO:79; and
- (f) an immunologic molecule, wherein the CDR3 region of the heavy chain of said immunologic molecule comprises amino acids 100 to 107 of SEQ ID NO:79.

10. The immunologic molecule of claim 1, selected from the group consisting of:

- (a) an immunologic molecule, wherein the CDR1 region of the light chain of said immunologic molecule comprises amino acids 26 to 32 of SEQ ID NO: 76;

(b) an immunologic molecule, wherein the CDR2 region of the light chain of said immunologic molecule comprises amino acids 50 to 52 of SEQ ID NO:76;

5 (c) an immunologic molecule, wherein the CDR3 region of the light chain of said immunologic molecule comprises amino acids 91 to 96 of SEQ ID NO:76;

(d) an immunologic molecule, wherein the CDR1 region of the heavy chain of said immunologic molecule comprises amino acids 26 to 32 of SEQ ID NO:80;

10 (e) an immunologic molecule, wherein the CDR2 region of the heavy chain of said immunologic molecule comprises amino acids 53 to 56 of SEQ ID NO:80; and

15 (f) an immunologic molecule, wherein the CDR3 region of the heavy chain of said immunologic molecule comprises amino acids 100 to 107 of SEQ ID NO:80.

20 11. The monoclonal antibody of claim 5, wherein said monoclonal antibody is 77A3.

25 12. The monoclonal antibody of claim 5, wherein said monoclonal antibody is 49C9.

13. The monoclonal antibody of claim 5, wherein said monoclonal antibody is 70B11.

25 14. A method of making the monoclonal antibody of claim 5 comprising:

(a) immunizing an animal with  $\alpha$ 2-antiplasmin or fragment thereof;

- (b) fusing cells from the animal with tumor cells to make a hybridoma cell line;
- (c) cloning the hybridoma cell line;
- (d) selecting for the monoclonal antibody capable of binding to both (1) human and nonhuman circulating  $\alpha$ 2-antiplasmins and (2) human and nonhuman fibrin crosslinked  $\alpha$ 2-antiplasmins; and
- 5 (e) obtaining the monoclonal antibody.

10 15. A hybridoma cell line which produces the monoclonal antibody of claim 5.

16. The hybridoma cell line of claim 15, wherein said hybridoma cell line is ATCC Accession No. HB-12192.

17. A method of making the hybridoma cell line of claim 15 comprising:

- (a) immunizing an animal with  $\alpha$ 2-antiplasmin or fragment thereof;
- (b) fusing the cells from the animal with tumor cells to make the hybridoma cell line; and
- 20 (c) obtaining the hybridoma cell line which produces the monoclonal antibody capable of binding to both (1) human and nonhuman circulating  $\alpha$ 2-antiplasmins and (2) human and nonhuman fibrin crosslinked  $\alpha$ 2-antiplasmins.

25 18. A nucleic acid molecule, selected from the group consisting of:

- (a) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 107 of SEQ ID NO:5;
- (b) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 107 of SEQ ID NO:7;

- (c) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 107 of SEQ ID NO:9;
- (d) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 107 of SEQ ID NO:75;
- 5 (e) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 119 of SEQ ID NO:11;
- (f) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 119 of SEQ ID NO:13;
- 10 (g) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 119 of SEQ ID NO:15; and
- (h) a nucleic acid molecule comprising a nucleotide sequence encoding for amino acids 1 to 119 of SEQ ID NO:79.

15 19. A method for treating pulmonary embolism, myocardial infarction, or thrombosis in a patient comprising administering a therapeutically effective amount of an immunologic molecule of claim 1 to said patient.

20 20. The method of claim 19, wherein said immunologic molecule is a monoclonal antibody.

25 21. The method of claim 20, wherein said monoclonal antibody is 77A3.

22. The method of claim 19, wherein said immunologic molecule is administered by continuous intravenous infusion or by bolus.

23. A method of treatment for pulmonary embolism, myocardial infarction, or thrombosis in a patient which comprises co-administering to a patient in need of such treatment:

- (a) a therapeutically effective amount of an immunologic molecule of claim 1; and
- (b) a therapeutically effective amount of a thrombolytic agent, wherein said immunologic molecule (a) is different from said thrombolytic agent (b), thereby treating said patient.

5           24. The method of claim 23, wherein said immunologic molecule is a monoclonal antibody.

10           25. The method of claim 24, wherein said monoclonal antibody is 77A3.

15           26. The method of claim 23, wherein said thrombolytic agent is plasmin.

20           27. The method of claim 23, wherein said thrombolytic agent is an anti-coagulant which inhibits fibrin.

25           28. The method of claim 27, wherein said anti-coagulant is selected from the group consisting of heparin, hirudin and activated protein C.

30           29. The method of claim 23, wherein said thrombolytic agent is an anti-coagulant which inhibits platelets.

35           30. The method of claim 23, wherein said thrombolytic agent is a plasminogen activator.

40           31. The method of claim 30, wherein said plasminogen activator is selected from the group consisting of streptokinase, prourokinase, urokinase,

tissue-type plasminogen activator, staphylokinase, and vampire bat plasminogen activator.

5           32.     The method of claim 23, wherein both said immunologic molecule (a) and said thrombolytic agent (b) are provided to said patient by an intravenous infusion or by an intravenously injected bolus.

10           33.     The method of claim 23, wherein said patient is provided with a first bolus containing said immunologic molecule (a) and a subsequently administered second bolus containing said thrombolytic agent (b).

15           34.     The method of claim 23, wherein:  
              (1)     said immunologic molecule (a) is provided to said patient at a dose of between 3 to 600 nmole per kg of patient weight; and  
              (2)     said thrombolytic agent (b) is provided to said patient at a dose of between 0.01 to 3.0 mg per kg of patient weight.

20           35.     A kit useful for carrying out the method of claim 23, being compartmentalized in close confinement to receive two or more container means therein, which comprises:

25           (1)     a first container containing a therapeutically effective amount of said immunologic molecule (a); and  
              (2)     a second container containing a therapeutically effective amount of said thrombolytic agent (b), wherein said immunologic molecule (a) is different from said thrombolytic agent (b).